

Appl. No. : 10/797,510
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AMENDMENTS TO THE CLAIMS

1. **(Previously Presented)** A device for hemodialysis, comprising:
 - a cylindrical housing having a housing wall;
 - a first cylindrical rotor having a first wall comprising a dialysis membrane, wherein said first cylindrical rotor is disposed coaxially within said housing and adapted to rotate therein, such that a first coaxial gap exists between the dialysis membrane and the housing wall;
 - a second cylindrical rotor having a second wall, wherein said second cylindrical rotor is disposed coaxially within said first cylindrical rotor and adapted to rotate therein, such that a second coaxial gap exists between the first and second walls;
 - a first inlet port in the housing wall for conducting blood into the first coaxial gap and a first outlet port in the housing wall for conducting dialyzed blood out of the first coaxial gap;
 - a second inlet port in said housing for conducting dialysis fluid into the second coaxial gap and a second outlet port in said housing for conducting dialysate out of the second coaxial gap;
 - a first rotational drive means for rotating the first cylindrical rotor within said housing; and
 - a second rotational drive means for rotating the second cylindrical rotor within said housing.
2. **(Original)** The device of Claim 1, wherein the first rotational drive means comprises a spinner magnet mounted to the first cylindrical rotor, and an external rotating magnetic field.
3. **(Original)** The device of Claim 1, wherein the second rotational drive means comprises a spinner magnet mounted to the second cylindrical rotor, and an external rotating magnetic field.
4. **(Original)** The device of Claim 1, wherein the first cylindrical rotor rotates with sufficient speed to create Taylor vorticity in the blood in the first coaxial gap.
5. **(Original)** The device of Claim 1, wherein the second cylindrical rotor rotates with sufficient speed to create Taylor vorticity in the dialysate in the second coaxial gap.

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6-14 (Canceled)

15. **(Previously Presented)** The device of Claim 1, wherein the second wall is impermeable to dialysis fluid.

16 (Canceled)

17. **(Previously Presented)** The device of Claim 1, wherein the second gap has a cross-section having a variable width.

18. **(Previously Presented)** The device of Claim 1, wherein the second wall has a generally circular cross-section.

19-28 (Canceled)

29. **(Previously Presented)** A device to facilitate mass transfer from a first fluid, comprising:

 a housing having a housing wall;

 a first rotor having a first wall comprising a filtration membrane, wherein said first rotor is disposed within said housing and adapted to rotate therein, such that a first gap exists between the filtration membrane and the housing wall;

 a second rotor having a second wall, wherein said second rotor is disposed within said first rotor and adapted to rotate therein, such that a second gap exists between the first and second walls;

 a first inlet port in the housing wall for conducting the first fluid into the first gap and a first outlet port in the housing wall for conducting filtered first fluid out of the first gap;

 a first rotational drive means for rotating the first rotor within said housing; and

 a second rotational drive means for rotating the second rotor within said housing.

30. **(Previously Presented)** The device of Claim 29, further comprising:

 a second inlet port in said housing for conducting a second fluid into the second gap and a second outlet port for conducting the second fluid out of the second gap.

31. **(Original)** The device of Claim 29, wherein the first rotor rotates at a speed sufficient to create Taylor vorticity in the first gap.

32. **(Original)** The device of Claim 29, wherein the second rotor rotates at a speed sufficient to create Taylor vorticity in the second gap.

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33. **(Original)** The device of Claim 29, wherein the second wall comprises a second filtration membrane.
34. **(Original)** The device of Claim 29, wherein the second wall is impermeable to fluid.
35. **(Original)** The device of Claim 29, wherein the first gap has a cross-section having a variable width.
36. **(Original)** The device of Claim 29, wherein the second gap has a cross-section having a variable width.
37. **(Original)** The device of Claim 29, wherein the first and second walls have generally circular cross-sections.
38. **(Original)** The device of Claim 37, wherein the first and second rotors are disposed coaxially within said outer housing.
39. **(Original)** The device of Claim 37, wherein the first and second rotors are not disposed coaxially within said outer housing.

40-60 (Canceled)